DATA SHEET

NEC

SILICON POWER TRANSISTOR

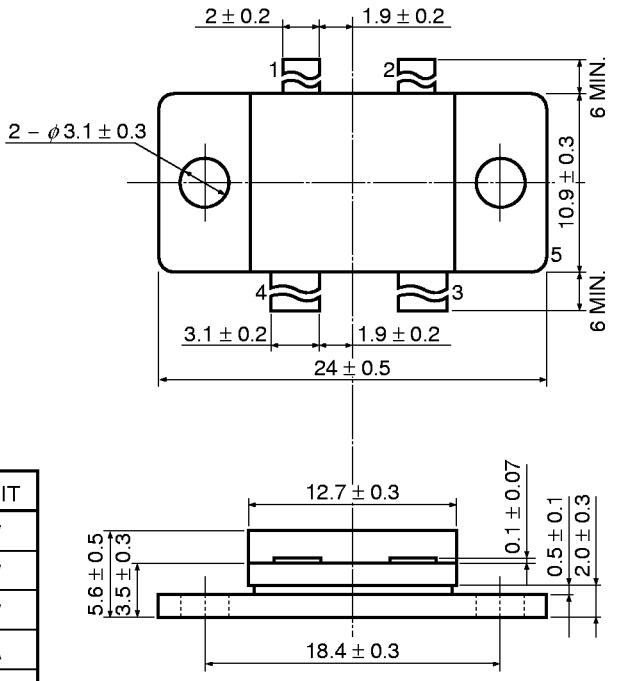
2SC3286-M

NPN SILICON EPITAXIAL TRANSISTOR FOR 230-MHz WIDEBAND POWER AMPLIFIER INDUSTRIAL USE

FEATURES

- High gain and high power output at 230 MHz
  P_{out} = 140 W @ V_{CC} = 28 V, P_{in} = 10 W, class AB
- Push-pull structure allows easy design of wideband amplifier
- Internal emitter balance resistor
- Withstand up to VSWR = ∞
- Internal impedance matching circuit
- High reliability due to gold electrodes

PACKAGE DIMENSIONS (in millimeters)



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	55	V
Collector to Emitter Voltage	V_{CEO}	32	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	24	A
Thermal Resistance (junction to case)	$R_{th\ (j\text{-}c)}$	0.63	°C/W
Total Power Dissipation	$P_{T\ (T_C = 25\ °C)}$	280	W
Junction Temperature	T_j	200	°C
Storage Temperature	T_{stg}	-65 to +150	°C

PIN CONNECTIONS

1. Collector
2. Collector
3. Base
4. Base
5. Emitter (heat sink)

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 30 V, I_E = 0			4	mA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 2 V, I_C = 0			4	mA
DC Current Gain	h_{FE} Note	V_{CE} = 10 V, I_C = 2 A (pulse)	20	60	150	–
Output Power	P_{out}	f = 230 MHz, V_{CC} = 28 V	50	51.4		dBm
		P_{in} = 10 W (40 dBm)	100	140		W
Collector Efficiency	η_C	I_q = 500 mA × 2, class AB	55	65		%
Feedback Capacitance	C_{re} Note	V_{CB} = 28 V, f = 1 MHz		170	240	pF

Note Per unit

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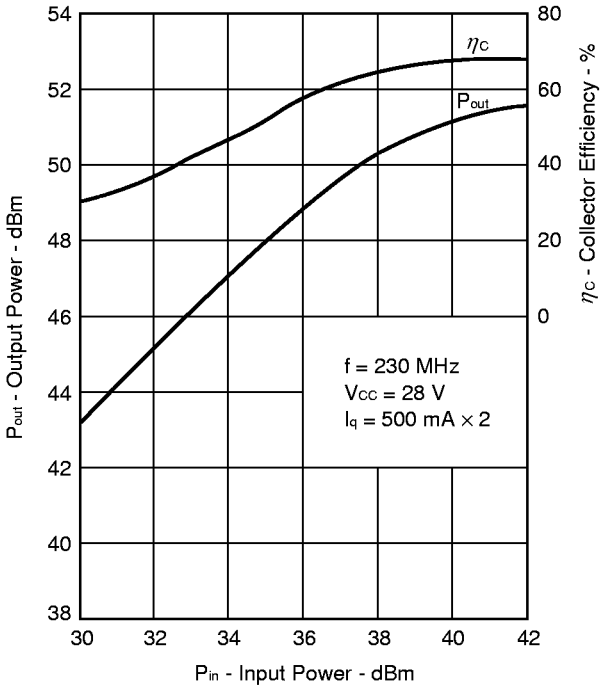
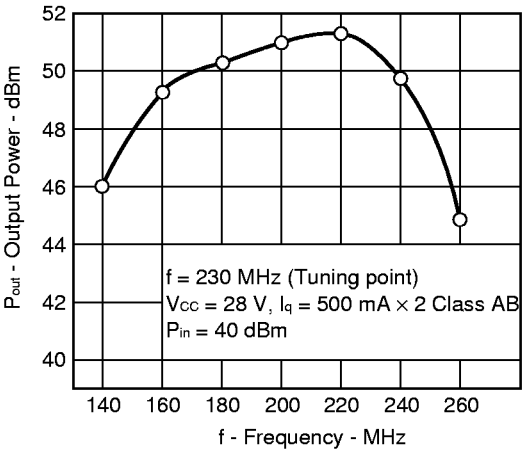
TYPICAL CHARACTERISTICS (T_A = 25 °C)

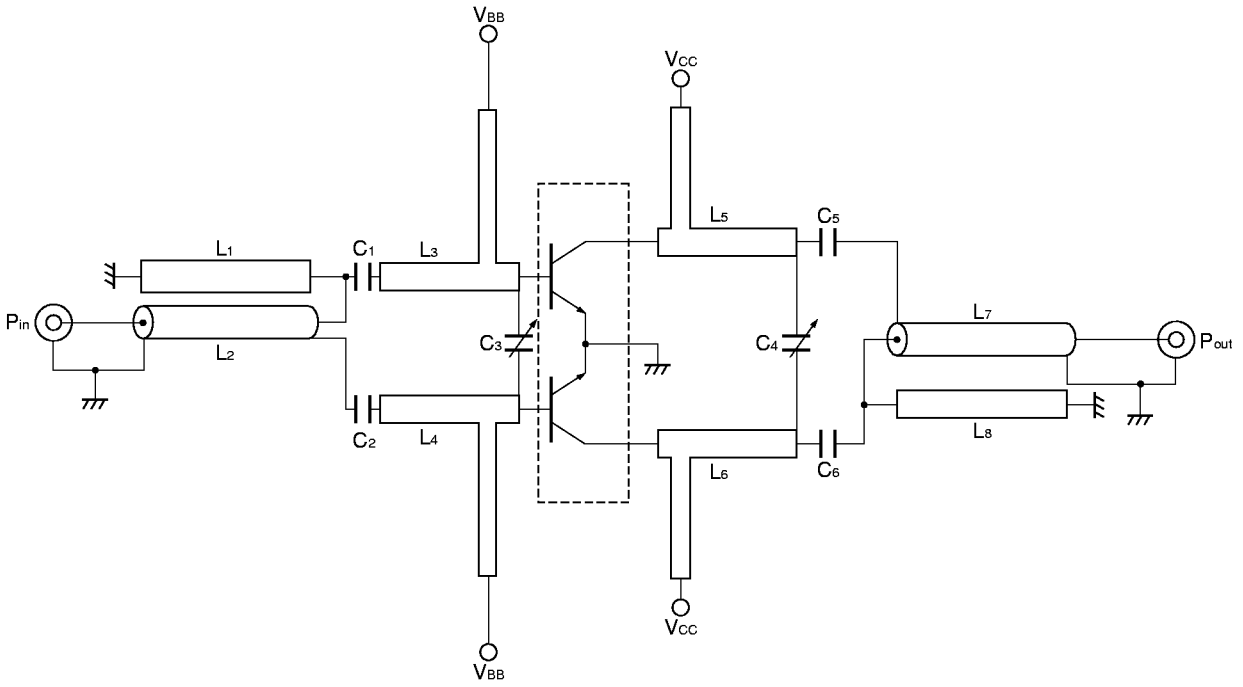
OUTPUT POWER AND COLLECTOR EFFICIENCY vs. INPUT POWER



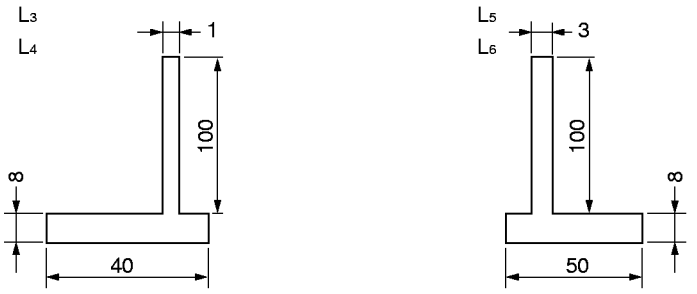
TYPICAL OUTPUT POWER vs. FREQUENCY



APPLICATION CIRCUIT EXAMPLE



$C_1 = C_2 = 51$ pF
C_3 = 40 pF
C_4 = 35 pF
$C_5 = C_6 = 39$ pF
$L_1 = L_8$ = Micro-strip line 70 × 5 mm
$L_2 = L_7$ = 50 Ω Semi-rigid cable 70 mm
$L_{3\ to\ 6}$ = Micro-strip line (in millimeters)



Substrate material: Glass-epoxy t = 1.6 mm